Comment (Case 3703) – A statement against the proposed designation of a neotype for *Nautilus pompilius* Linnaeus, 1758 (Mollusca, Cephalopoda, Nautilida)

(see BZN 72(4): 274–285 [Case]; **73**(1): 48; **73**(2–4): 139–143)

Ian G. Gleadall

International Fisheries Science Unit, Graduate School of Agricultural Sciences, Tohoku University, Amamiya 1–1, Sendai, Japan 981–8555
(e-mail: octopus@bios.tohoku.ac.jp)

http://zoobank.org/urn:lsid:zoobank.org:pub:6692ABA9-F29E-437C-BE43-FD483182AD4E

This comment argues against the proposed designation of a neotype. The authors of the proposal have used the extant syntype series to identify their specimen as the same species as that described by Linnaeus, so there is no apparent justification for designating this specimen as a neotype. The prospective neotype is just a voucher specimen useful in redescribing the species and distinguishing it from closely related taxa.

1. The original description did not designate types, so the proposal discussed at length a number of specimens eligible as syntypes by indication in Linnaeus (1758). This was based mostly on a previous detailed discussion of the types of *Nautilus pompilius* by one of the authors (Nikolaeva, 2015). To summarize, the proposal recognized six specimens as comprising the extant syntype series, although for none of these was the locality stated (neither in the proposal itself, i.e., Nikolaeva et al., 2015, nor by Nikolaeva, 2015).

a) paragraph 12 discussed the shell of a young animal in the Linnean Society collection: this is a syntype (whatever its developmental stage or condition) because it was a specimen identified as *Nautilus pompilius* and possessed by Linnaeus.

The number of specimens treated in paragraph 13 is a little obscure and few registration details were given (localities in particular), but it is deduced from the proposal that the following are syntypes extant in Uppsala University Museum:

b) 4 specimens (1 specimen broken & etched, 2 subadults and 1 adult).

c) 1 specimen, no. 880 (listed by Linnaeus, 1764, as no. 149). It is a large shell, diameter 180 mm, with a complete aperture, closed umbilicus and a well-preserved characteristic colour pattern.

2. These types were mostly not described in detail (referring the reader to Nikolaeva, 2015, which includes photographs of most extant syntypes), but the last mentioned syntype specimen in particular appears to be a suitable example of the species identified by the authors as *Nautilus pompilius* Linnaeus. The Code discourages lectotype designation unless justified and no doubt was expressed in the proposal as to the identification of any of the extant syntypes. Therefore, the logical action to follow would be to redescribe the species *Nautilus pompilius* with reference to the six available syntypes, accompanied by morphological information from a selection of new voucher specimens at different growth stages and corresponding DNA sequences. The redescription would then be sufficient to identify the species (and to distinguish any subspecies) to fulfil the aims of managing its fisheries and survival. There is no apparent necessity for a neotype designation.

3. In paragraph 14, the authors stated that, "it is logical to interpret Ambon as the type locality for the species". However, this is only true if one of the Rumphius specimens were to be designated as lectotype (or if that happened to be the locality of a valid

neotype designation), otherwise the type locality is interpreted as the locality, where known, of each of the specimens in the syntype series (Article 73.2.3 of the Code), whether or not those localities were cited in the original description. The authors did not mention the localities of the extant syntype specimens, but if Ambon is the only syntype locality recorded then that is the type locality of *Nautilus pompilius*.

4. In paragraph 15, the authors reviewed proposals for subspecific distinctions among different populations of *Nautilus pompilius* noting that, from recent genetic studies, this species is distributed throughout much of the western Central Pacific and Southeast Asia, with distinct population structure within the species noted for Indonesia, Western and Eastern Australia and the Philippines. Subspecies distinctions were not recognized except for one other possible species from the Philippines originally described as *Nautilus pompilius suluensis*. If subspecies were to be recognized subsequently, the type locality Ambon is fairly central within the known distribution of *Nautilus pompilius*, which also would be the type locality of the nominotypical subspecies *N. pompilius pompilius*. Therefore, on the evidence presented in the proposal, the problems of describing other subspecies, species and their respective type localities and distributions can be approached without the necessity for designating a neotype for *N. pompilius*.

5. In paragraph 16, the authors discussed "unidentifiable name-bearing types" but it is not clear what they meant by this statement. It could mean that they have been unable to identify which of the specimens at their disposal are type specimens, but clearly that is not so (apparently there are six extant syntypes). If they meant that name-bearing type specimens cannot be identified as *Nautilus pompilius*, that also does not seem to be so, at least with reference to Uppsala University Museum specimen no. 880. As the authors themselves acknowledge in paragraph 17: "The proposed neotype is consistent with what is known on the shell pattern and morphology of syntypes and from other sources and agree[s] with the prevailing usage". Since the proposed neotype was identified with reference to the syntype series, the latter takes precedence as type material and, on the evidence provided, there is no justification for designating a neotype.

6. A further point not emphasized in the proposal is that for each of the syntype specimens only the shell is extant, the animal itself not represented (except as illustrations of animals identified as syntypes which are no longer extant). Absence of the animal itself from any type material is perhaps the point at the heart of this proposal. However, Article 72.5.1 of the Code states that, for species described before 1931, ". . . any part of an animal . . . or of the work of an extant animal . . ." is eligible to be a name-bearing type.

7. For this species, then, the only potential problems affecting type material and its designation seem to be the identification and locality of each of the syntypes. If any were to be identified as a different species or subspecies, it could be removed from the syntype series during a redescription of *Nautilus pompilius*, and designation of a lectotype could be considered. Otherwise, Ambon is the type locality and all six extant syntype specimens comprise the type material. The details of morphology and molecular analysis from voucher specimens taken in the vicinity of Ambon would provide the necessary base from which to identify other taxa closely related to *Nautilus pompilius*.

8. Justification for designating a neotype would only arise if more than one *Nautilus* taxon were to be identified in the vicinity of Ambon and none of the extant syntypes could be identified as one or other of those taxa. From correspondence with the authors, it seems clear that a comprehensive review of the extant nautiloids is required to resolve the number of extant taxa. However, in my opinion, a clearly justified case has yet to be

made for setting aside the syntypes and designating a neotype, bearing in mind also that *Nautilus pompilius* is the type species of genus *Nautilus*.

References

Linnaeus, C. 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.

Nikolaeva S.V. 2015. A study of the type series of *Nautilus pompilius* Linnaeus, 1758 (Mollusca, Cephalopoda, Nautilida). *Zootaxa*, **3963**(1): 55–73.

Nikolaeva, S.V., Saunders, W.B., Mapes, R. & Allcock, A.L. 2015. Case 3703. *Nautilus pompilius* Linnaeus, 1758 (Mollusca, Cephalopoda, Nautilida): proposed designation of a neotype. *Bulletin of Zoological Nomenclature*, **72**(4): 274–285.